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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,156	03/24/2006	Patrice Ouvrier-Buffet	BIF023245 US	2553

757 7590 07/29/2008

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER	
GREEN, YARA B	

ART UNIT	PAPER NUMBER
2884	

MAIL DATE	DELIVERY MODE
07/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,156	OUVRIER-BUFFET ET AL.	
	Examiner	Art Unit	
	YARA B. GREEN	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Applicant's Amendment April 7, 2008. Claims 1, 3-7 have been amended. Claim 2 has been cancelled. Claims 11-19 have been added. Currently, claims 1 and 2-19 are pending.

Response to Amendment

1. Applicant's amendments to claims 3, 5, and 7 successfully overcome the rejection under 35 U.S.C. 112, second paragraph.

Response to Arguments

2. Applicant's arguments, see page 7, paragraphs 1, 3, filed April 7, 2008, with respect to the rejection(s) of claim(s) 1 under 35 U.S.C. 102 (e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kamimura et al. (US Pub. 2002/0154729) and Kannan et al. (US Pub. 2004/0129888).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 4-12,** and **14-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamimura et al. (US Pub. 2002/0154729; filed March 3, 2000) in view of Kannan et al. (US Pub. 2004/0129888; filed September 7, 2001).

Re **claim 1**, Kamimura et al. teach a device for processing detector current from a particle detector (para. 0034), said device comprising a unit for reducing background noise present in said detector and an integrator for measuring the total charge transported by the treated detector current for a predetermined time interval (para. 0039, 0040, 0042).

Kamimura et al., however, do not teach converting the current into a voltage and passing the voltage through a threshold trigger to filter out background noise. In a similar field of endeavour, Kannan et al. teach a threshold trigger for allowing an intermediate voltage to pass when it exceeds a first predetermined threshold value and for preventing the intermediate voltage from passing when it falls below a second predetermined threshold value (para. 0085, 0088). It should be noted that Applicant defines the first and second triggering thresholds to be equal to which Kannan et al.'s threshold trigger is similar. Kannan et al. recognizes the need to prevent unwanted electrical noise pulses from the detector from being used in radiation measurements. . One of ordinary skill in the art would have similarly been motivated to implement the threshold trigger of Kannan et al. in the detector of Kamimura et al. in order to suppress fluctuating signals that will degrade the signal to noise. As Kannan et al. requires the input signal for the comparator to be a voltage, and it is not uncommon for the output signal of a detector be a current (as taught by Kamimura et al.), it would have been obvious to one of ordinary skill in the art to implement a converter to change the incoming current to a voltage that may be processed through the threshold trigger and then a second converter to return the voltage signal to a current so that the signal is suitable for the integrator

Re **claim 4**, Kamimura et al., as modified by Kannan et al. teach the limitations of claim 1. Kannan et al. further teach wherein the threshold trigger comprises a comparator (para. 0095).

Re **claim 5**, Kamimura et al., as modified by Kannan et al. teach the limitations of claim 1. Although neither reference specifically disclose a voltage-to-current converter, it is well known in the art to use a resistor as such. One of ordinary skill in the art would have been motivated to implement a resistor as a voltage-to-current converter in order to change the outgoing voltage to a current so that the current may integrated by the integrator and provide imaging.

Re **claim 6 and 7**, Kamimura et al., as modified by Kannan et al. teach the limitations of claim 1. Kamimura et al. further teach wherein the system comprising a set of particle detectors is a photon detector producing respective signals so that at least one of the device may be processed according to claim 1 (para. 0034, 0037).

Re **claims 8** and **9**, Kamimura et al., as modified by Kannan et al. teach the limitations of claim 1. Kamimura et al. further teach wherein the radiation device may be comprised in an imaging apparatus and further in a radiology apparatus (para. 0002).

Re **claim 10**, Kamimura et al., as modified by Kannan et al. teach the limitations of claim 1. Kamimura et al. disclose the system to be suitable for computed tomography, which, without regard to a specific imaging mode common to computed tomography, can easily include fluoroscopy.

Re **claim 11**, Kamimura et al., as modified by Kannan et al. teach the limitations of claim 1. Kamimura et al. further teach a unit for reducing a direct component of the background noise in said detector current comprising a capacitor connected to said particle detector and an input of the unit for reducing the fluctuating component (para. 0073).

Re **claim 12**, Kamimura et al., as modified by Kannan et al. teach the limitations of claim 1. Kamimura et al. further teach wherein said integrator comprises an amplifier and a capacitor arranged in parallel (para. 0038).

Re **claim 14**, the limitations recited are essentially the same as those of claim 1 and are therefore rejected similarly.

Re **claim 15**, Kamimura et al. teach a method for processing detector current from a particle detector (para. 0034), said method comprising a unit for reducing background noise present in said detector and an integrator for measuring the total charge transported by the treated detector current for a predetermine time interval (para. 0039, 0040, 0042).

Kamimura et al., however, do not teach converting the current into a voltage and passing the voltage through a threshold trigger to filter out background noise. In a similar field of endeavour, Kannan et al. teach a switch that provides an output switch voltage, said switch allowing an intermediate voltage to pass when the voltage exceeds a first predetermined threshold and preventing said voltage from passing when it falls below a second predetermined threshold (para. 0095), where the thresholds may be adjusted. Kannan et al. recognize the need to prevent unwanted electrical noise pulses from the detector from being used in dosage determinations. . One of ordinary skill in the art would have similarly been motivated to implement the threshold trigger of Kannan et al. in the detector of Kamimura et al. in order to suppress fluctuating signals that will degrade the signal to noise. As, Kannan et al. requires the input signal for the comparator to be a voltage, and it is not uncommon for the output signal of a detector be a current (as taught by Kamimura et al.), it would have been obvious to one of ordinary skill in the art to implement a converter to change the incoming current to a voltage that may be processed through the threshold

trigger and then a second converter to return the voltage signal to a current so that the signal is suitable for the integrator

Re **claim 16**, Kamimura et al., as modified by Kannan et al., teach the limitations of claim 15, as mentioned above. Kamimura et al. further teach processing the current through a capacitor immediately after being received by the detector (0073) so that the noise from the detector. It follows then that it would have been obvious to one of ordinary skill in the art to configure the apparatus of Kamimura et al., as modified by Kannan et al., in such a manner as to place the capacitor between the semiconductor and the threshold trigger so that the initial noise from the sensors is removed.

Re **claim 17**, Kamimura et al., as modified by Kannan et al., teach the limitations of claim 15, as mentioned above. Kamimura et al. further tech reinitializing the integration process at predetermined time intervals (para. 0044).

Re **claim 18**, Kamimura et al., as modified by Kannan et al., teach the limitations of claim 1, as mentioned above. Kamimura et al. further teach wherein the particle detector measures x-rays (para. 0002).

Re **claim 19**, Kamimura et al., as modified by Kannan et al., teach the limitations of claim 1, as mentioned above. Kamimura et al. further teach wherein the apparatus can detect a range of strong and weak streams of particles (para. 0042).

5. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamimura et al. (US Pub. 2002/0154729; filed March 3, 2000) in view of Kannan et al. (US Pub. 2004/0129888; filed September 7, 2001) and further in view of Takebe et al. (US Patent No. 5,187,986; published February 23, 1993)

Kamimura et al., as modified by Kannan et al., teach the limitations of claim 1, as mentioned above. Although neither reference specifically disclose a current to voltage converter, Takebe et al. teach that is well known to arrange an amplifier in parallel with a resistor in order to convert detected current signals into corresponding voltages (col. 3, lines 30-40). One of ordinary skill in the art would have been motivated to implement a current-to-voltage converter that is well known in the art, as taught by Takebe et al., in order to change the incoming current into a voltage that may applied to threshold trigger in order to suppress fluctuating background noise.

6. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamimura et al. (US Pub. 2002/0154729; filed March 3, 2000) in view of Kannan et al. (US Pub. 2004/0129888; filed September 7, 2001) and further in view of Kameshima (US Pub. 2004/0178349; filed July 26, 2002).

Kamimura et al., as modified by Kannan et al., teach the limitations of claim 1, as mentioned above. Kamimura et al. teach the sensors to be semiconductors, but are silent to the type of semiconductor used thereby allowing for that which is well known in the art. In a similar field of endeavour, Kameshima teaches that CdZnTe is a well known material that is suitable for detecting of x-rays as is found in the apparatus of Kamimura (para. 0056). One of ordinary skill in the art would have been motivated to use CdZnTe as the semiconductor material, as taught by Kameshima, in the apparatus of Kamimura et al, as modified by Kannan et al., as it is found to be a suitable semiconductor for x-ray.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YARA B. GREEN whose telephone number is (571)270-3035. The examiner can normally be reached on Monday - Thursday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yara B. Green
/YBG/

/David P. Porta/

Supervisory Patent Examiner, Art Unit 2884